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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/088,096	07/02/2002	Michael Thompson	P67753US0	5013

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JACOBSON HOLMAN PLLC
400 SEVENTH STREET N.W.
SUITE 600
WASHINGTON, DC 20004

EXAMINER

YOHA, CONNIE C

ART UNIT PAPER NUMBER

2818

DATE MAILED: 11/06/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application N .	Applicant(s)	
	10/088,096	THOMPSON ET AL.	
	Examiner	Art Unit	
	Connie c. Yoha	2818	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 March 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6, 8 and 9 is/are rejected.
- 7) ☐ Claim(s) 7 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 March 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 6.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

1. This office acknowledges receipt of the following items from the Applicant:

Papers submitted under 35 U.S.C. 119(a)-(d) have been placed of record in the file.

Information Disclosure Statement (IDS) filed on 8/12/02 was considered.

2. Claims 1-9 are presented for examination.

Abstract

3. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 250 words. It is important that the abstract not exceed 250 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

4. The abstract of the disclosure is objected to because it is not limited to a single paragraph format.

Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 1, and 8-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Kobayashi et al Pat. No. 4814294.

With regard to claim 1, Katti discloses a sense device for reading data stored in a memory comprising memory cells, wherein said sensing device senses a current response corresponding to the data, typically a binary one or a binary zero, and performs an integration of two read values (col. 3, line 63- col. 4, line 9), characterized in that the sense device comprises a voltage sense circuit for sensing the current response (fig. 7, 700) and means (fig. 4, 714 and 702) for storing and comparing two consecutive read values, one of which is a reference value (fig. 4, Vn) (col. 4, line 13-18). Katti does not disclose that the memory cells are in the form of ferroelectric capacitors as claimed in the invention, rather, he discloses the memory cells comprise of nonvolatile memory cells. However, a ferroelectric memory capacitors is just one type of nonvolatile memory cells. Therefore, it would have been an obvious matter of design choice for one having an ordinary skill in the art at the time the invention was

made to use the ferroelectric capacitor in place of a non-volatile memory cell as storage device for storing data to be read out of or written into.

Katti also does not disclose that the sensing device comprises an integrator circuit use for sensing the current as claimed in the invention. However, Katti discloses a voltage sense amplifier (fig. 4, 700) use to sense the current passing through the column of the cell (col. 4, line 2-4). It would have been obvious for one having an ordinary skill in the art at the time the invention was made to recognized that the voltage sense amplifier is functionally equivalent to the integrator circuit as claimed, of which is use for sensing currents passing through the memory cells.

Drafted as Method claim

As per claim 8 and 9 encompass the same scope of invention as to that of claim 1, except they draft in method format instead of apparatus format. The claim is therefore rejected for the same reason as set forth above.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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Claim 2-3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katti et al, Pat. No. 6219273 in view of Cernea et al, Pat. No. 6282120.

With regard to claim 2, Katti, as applied in prior rejection, disclosed all claimed subject matter except the claimed integrator circuit comprises an operational amplifier and a capacitor connected between an inverting input of the operational amplifier and the output thereof. Cernea discloses the integrator circuit comprises an operational amplifier (fig. 13B, 460) and a capacitor (fig. 13B, 470) connected between an inverting input of the operational amplifier and the output thereof. It would have been obvious for one having an ordinary skill in the art at the time the invention was made to replace the claimed integrator circuit with the integrator circuit of Cernea's to use to sense the current flowing through the column of the memory cells and to equalize the voltage on the two input current values before it is being sensed (col. 38-42).

With regard to claim 3, Katti, as applied in prior rejection, disclosed all claimed subject matter except the integrator circuit comprises a switch connected in parallel over the capacitor. Cernea discloses the claimed integrator circuit comprises a switch connected in parallel over the capacitor (fig. 13B, 472). It would have been obvious for one having an ordinary skill in the art at the time the invention was made to replace the claimed integrator circuit with the integrator circuit of Cernea's to use to sense the current flowing through the column of the memory cells and to equalize the voltage on the two input current values before it is being sensed (col. 38-42).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Katti et al, Pat. No. 6219273 in view of Jaffe et al, Pat. No. 5086412.

With regard to claim 4, Katti, as applied in prior rejection, discloses all claimed subject matter and Katti also discloses that the means for two consecutive reads comprises a first sample/hold circuit (fig. 7, S/H) for sampling/storing a first read value (fig. 7, V_n). Katti discloses a comparator circuit connected to the output of the sample/hold circuit. The comparator of Katti different than that of the comparator of the claimed invention is that one of it's input is coming from one sampling/hold circuit and the other input is connected straight from the second read value (fig. 7, V_P). Katti does not disclose a second sample/hold circuit for sampling/storing a second read value, and that comparator circuit connected to the output of the two sample/hold circuits for determining the state of an addressed memory cell as claimed. However, Jaffe discloses a sensing device having a second sample/hold circuits for sampling/storing a second read value and the comparator circuit connected to the output of two sample/hold circuits. Since Katti has a sample/hold circuit for sampling/storing a first

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read value, an artisan can recognized that, it too can have a second sample/hold circuit for sampling/storing a second read value as taught by Jaffe (fig. 5, 222). Therefore, it would have been obvious for one having an ordinary skill in the art at the time the invention was made to combine Katti's sensing circuit with Jaffe's to obtain a sensing circuit having a second sample/hold circuit for sampling/storing a second read value in order to sampling/store data and since the comparator now connected to two sample/hold circuits, it would give the comparator stable voltages to use in the sensing operation and provides the comparator sufficient setup time before conducting the sensing operation.

With regard to claim 5, Katti, as applied in prior rejection, discloses all claimed subject matter and Katti further discloses that the first sample/hold circuits comprise capacitor (fig. 7, 714). Katti does not disclose the second sample/hold circuits comprise capacitor. However, it would have been obvious for one having an ordinary skill in the art at the time the invention was made to realized that the second sample/hold circuits as discussed in claim 4, should also be a capacitor as well.

With regard to claim 6, Katti, as applied in prior rejection, discloses all claimed subject matter and Katti further discloses that the comparator circuit is an operational amplifier (fig. 7, 702).

Allowable Subject Matter

8. Claim 7 is objected as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art of record does not show the limitation of said control circuit includes a correction circuit, connected between the second sample/hold circuit and the output of the integrator circuit.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicants' disclosure. Zhou et al (6124819) and Koenig et al (4839643) disclose a sensing device.

10. When responding to the office action, Applicants' are advised to provide the examiner with the line numbers and page numbers in the application and/or references cited to assist the examiner to locate the appropriate paragraphs.

11. A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) day from the date of this letter. Failure to respond within the period for response will cause the application to become abandoned (see MPEP 710.02 (b)).


12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to whose telephone number is (703) 306-5731. The examiner can normally be reached on Mon. - Fri. from 8:00 A.M. to 5:30 PM. The examiner's supervisor, David Nelms, can be reached on (703) 308-4910. The fax

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phone number for this Group is (703) 308-7722. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 305-0956.


C. Yoha

October 2002


CONNIE. C. YOHA
PATENT EXAMINER
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